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10/537,360	01/17/2006	Thomas Kley	4590-416	2655

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EXAMINER	
LEE, BENNY T	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,360	KLEY ET AL.	
	Examiner	Art Unit	
	Benny Lee	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 June 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6 June 2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: Page 1, line 16; page 2, line 17; page 3, line 1; page 16, line 38: note that at each occurrence, "US-A-" should be rephrased as --US Patent No.-- for an appropriate characterization. Page 2, line 2, note that "such as these" should be rephrased for clarity of description; line 6, note that "space-saving" should be rewritten as --compact-- for idiomatic clarity; line 7, note that "weight-saving" should be rewritten as --light-weight-- for idiomatic clarity. Page 2, line 18, note that "cited initially" should be rephrased as --initially cited-- for idiomatic clarity. Page 3, line 4, note that "owing" should be rewritten as --due-- for idiomatic clarity; lines 6, 7, note that --initially-- should be inserted prior to "design" and ", from the start" should be deleted to provide idiomatic clarity; line 22, note that "worked-out" should be rewritten for idiomatic clarity. Page 5, line 11, note that "each to be" should be rephrased as --to be each-- for idiomatic clarity. Page 6, line 2, note that --corresponding-- should precede "cavity" for an appropriate characterization. Page 7, line 27, note that a --,-- should be inserted after "slots" for grammatical clarity. Page 15, lines 17, 18, note that "to whose end" should be rephrased for idiomatic clarity.

The disclosure is objected to because of the following informalities: Page 1, line 11; page 4, line 2; page 8, lines 19, 20: note that reference to the "clause of claim 1", "claims 1 and 27" & "the dependent claims" are respectively inappropriate and should be deleted (i.e. these claims may not appear in any final version of the claims). Page 1, line 34, note that "appliances" is vague in meaning and should be rewritten for clarity of description. Page 3, line 30, note that

"DESCRIPTION" should be rewritten as --SUMMARY-- for consistency with PTO guidelines. Page 5, lines 10, 14, note that it is unclear what features are intended by the respective recitation of "it". Page 8, line 22, note that "EXPLANATION" should be rewritten as --DESCRIPTION-- for consistency with PTO guidelines. Pages 8, 9, 11, note that in the descriptions of Figures 1, 4, 5, 6, 7, 19 & 20, the respective description of these drawing figures appears to be excessive (i.e. contains description which is more suited for the detail description) and thus should be amended to be more in line with a brief description of the drawings. Page 11, line 25, note that "APPROACHES TO IMPLEMENTATION" should be rephrased as --DETAIL DESCRIPTION-- for consistency with PTO guidelines. Page 12, line 6, note that reference label "32" only appears in --Figure 2-- and thus should be reference thereto; lines 8, 9, note that "15 … 19 … in Figures 4 and 5" should be rewritten as to be commensurate with the corresponding labeling in each one of Figures 4 & 5 for clarity of description. Page 13, lines 34, 37 & page 14, line 3, note that "slots 39" should reference --Figure 7--, "lugs L1" should reference --Figures 4, 5, 6-- and "lugs L2" should reference --Figures 4 & 5--, respectively for consistency with the labeling in those drawing figures. Page 14, line 18, note that "A1 … A4" should be respectively rewritten as --A1, A2, A3, A4-- for consistency with the labeling in the corresponding drawing figures. Page 14, line 21 & page 18, line 3, note that "21 … 24" should be rewritten as --21, 22, 23, 24-- for consistency with the labeling in the corresponding drawing figures. Page 16, lines 9, 19, note that "holder 47" (line 9), "gearbox unit 42" (line 19) & "motor 41" (line 19) should reference --Figure 10--, --Figures 8, 9-- & --Figure 9-- respectively for consistency with the labeling in those drawing figures. Page 17, line 19, note that "driveshaft 55" should reference --Figure 10-- in which it is labeled; line 28, note that reference label "F'" does not appear to be

consistent with the labeling in any drawing figure and needs clarification; line 31, note that "arranged in a few" is vague in meaning and needs clarification. Page 19, line 31, note that reference to "band 4" is vague in meaning and needs clarification. Pages 22, 23, note that the following symbols used in the specification description need to be rewritten to be inclusive of all reference labels: (15 … 19); (21 … 24); (61 … 64); (A1 … A4). Moreover, with respect to the Table at pages 22 & 23, the examiner suggests that an additional column be added to the Table, which would include reference to the specific drawing figure(s) in which the corresponding symbol(s) appear to provide completeness of description.

Appropriate correction is required.

The drawings are objected to because in Figure 15, should reference label "F" properly be --F'-- for consistency with the specification description?

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The detail description needs to provide a description that the dielectric element and the dielectric body are both made of the same material such as recited in claim 8.

Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 14, last line of each claim, note that the respective feature intended by the corresponding recitation of "it" should be specified for clarity of description.

In claim 2, note that reference to "the disk plane" is vague in meaning and needs clarification.

In claim 5, note that it is unclear which two features are intended by the recitation of "the two" and need clarification.

In claims 10-12, 18, 23, 25, 29, 30, note that use of the term "preferably …" renders the respective claim vague and indefinite in that it is unclear whether the preferable feature is intended to be a positive narrower limitation of an earlier recited broader limitation. Clarification is needed.

In claim 14, note that reference to "in each case" is vague in meaning since the nature of "each case" does not appear to have been previously defined. Clarification is needed.

In claim 16, note that it is unclear how "a motor mounting plate" as recited herein relates to "the motor mounting plate" previously recited in claim 14, from which this claim directly depends (the same plate, a different plate, etc). Clarification is needed.

In claim 20, note that it is unclear which features (e.g. the filters, the cavities, etc) are intended by the recitation of "them". Clarification is needed.

In claim 22, note that it is unclear how "a number of filters" recited herein relates to the earlier recitation of "each of the filters" previously recited in claim 20, from which this claim directly depends (e.g. a part of each filter, separate from each filter, etc). Clarification is needed.

In claim 23, note that it is unclear, even in light of the specification, what characterizes "a vertical center plane of the cavities to be coupled". Clarification is needed.

In claim 24, note that it is unclear whether it is proper to characterize that the "controller" (with the corresponding features thereof) is "provided in the eccentric cutouts" as recited herein. Note from the disclosure that the controller appears to be external to the eccentric cutout. Clarification is needed. Also, note that it is unclear whether "dielectric resonator bodies" is an appropriate characterization. Clarification is needed.

In claims 24, 25, note that it is unclear which ones of the recited dielectric bodies is intended by the recitation of "the dielectric (resonator) bodies". Clarification is needed.

In claim 27, note that it is unclear how "a filter housing" relates to the earlier recitation of the "filter" (i.e. the same feature, different features, etc). Clarification is needed.

The following claims have been found to be objectionable for reasons set forth below:

In claim 1, lines 2, 3, 4, note that the recitation of "each of which" & "whose position" should be rephrased for an appropriate description.

In claim 9, lines 4, 7, note that "is formed from a" & "are formed by" should be rewritten as --comprises-- for an appropriate characterization.

In claim 19, note that "in one of" should be deleted as being unnecessary.

In claim 21, note that --shape configuration-- should be inserted after "square" for an appropriate characterization.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4, 8, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al.

Nishikawa et al discloses a radio frequency filter (e.g. Figs. 24-26) comprising: a filter body defining a plurality of dielectric resonant elements (e.g. elongated disk shape dielectric cylindrical portions 106, 107, 108) spaced apart from each other to define in conjunction with upper and lower lids (102, 103) a plurality of filter cavities. However, the plurality of dielectric

resonant elements do not include a respective eccentric cutout in which a corresponding dielectric tuning element can be rotatably received therein to adjust the resonant frequency of the filter.

Nishikawa et al (e.g. Fig. 36) discloses a tuning mechanism for an exemplary dielectric resonant element (4), which includes two eccentric (i.e. offset from the center of the resonant element) cutouts or partial through holes located in the dielectric resonant element (4). A dielectric tuning body (e.g. dielectric rod 165) is insertable into and out of the cutouts to provide adjustment of the resonant frequency. The respective dielectric rods (165) are attached to a corresponding metallic portion (166) passing through a respective aperture (163) located in an upper case plate (162) as depicted generally in Fig. 33. As described in column 18, lines 35-46, the aperture (163) and corresponding metallic portion (166) define a threaded assembly, such that, in operation, the threaded metallic portion (166), can be rotated about a rotation axis to thereby provide a corresponding rotation and linear insertion along the rotation axis of dielectric rods (165) into and out of the cutouts in the dielectric resonant element (4) to thereby adjust the resonant frequency of the filter structure.

Accordingly, it would have been obvious in view of the references, taken as a whole, to have modified the plural resonant elements (106, 107, 108) in the Fig. 24 embodiment of Nishikawa et al to have included respective cutouts and corresponding dielectric tuning rods or bodies (such as those taught in Fig. 36 of Nishikawa et al). Such a modification would have been considered obvious since it would have imparted the advantageous benefit of the ability of tuning a dielectric filter, which previously was not tunable, thereby suggesting the obviousness of such a modification. Moreover, as known to those of ordinary skill in the art, by selecting the

dielectric material of the dielectric resonant element and the dielectric tuning body to have been the same material, one of ordinary skill in the art would have provided optimal matching of thermal expansion characteristics (i.e. same material expand/contract at the same rate), thereby suggesting the obviousness of such a modification. Furthermore, as known to those of ordinary skill in the art, the number of cavities can obviously be selected depending on the desired degree of frequency filtering (e.g. the more the cavities, the more refined is the frequency response), thereby suggesting the obviousness of such a modification.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al in view of Ishikawa et al.

The filter of the Nishikawa et al combination discloses the claimed tuning assembly for a plurality of dielectric resonant elements. However, Nishikawa et al does not disclose specifically that the dielectric tuning body have dimensions which substantially match the cutout and are separated there from by a thin air gap.

Ishikawa et al (e.g. Fig. 1A) discloses an exemplary dielectric tuning body (e.g. tuning unit 18), which as evident from the view in Fig. 1A has a shape matching the shape of a cutout (e.g. hollow portions 16a, 17a) in the dielectric resonant element (16) and is separated there from by a narrow air gap.

Accordingly, it would have been obvious in view of the references, taken as a whole, to have further modified the cutout and dielectric body tuning assembly in the above obviousness combination to have included a dielectric tuning body which has a matching shape and narrow air gap, such as exemplarily taught by Ishikawa et al. Such a further modification would have been considered obvious since it would have imparted to the obviousness combination the

advantageous benefit of increased tuning range provided by such a matched tuning body and narrow air gap as taught by Ishikawa et al (e.g. see column 1, lines 27-30 in Ishikawa et al), thereby suggesting the obviousness of such a modification.

Claims 9, 12, 13, 15, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al in view of Cavey.

The filter of the above obviousness combination discloses the claimed invention except for a motor mounting plate and wall plates which separate individual cavities.

Cavey (e.g. Fig. 4) discloses an exemplary tunable filter structure, which includes a plurality of dielectric resonator elements (e.g. dielectric puck 3) disposed within a housing having partition (i.e. walls) separating the dielectric resonator elements into individual cavities (e.g. 6). Moreover, note that the cavity housing includes an upper plate upon which a tuning assembly, including a stepping motor (13) which is provided to mechanically connected, via an opening in the upper plate of the housing, to a tuning element (e.g. a movable dielectric puck 2) disposed within a respective cavity adjacent a corresponding dielectric resonator element or puck (3) to thereby tune the resonant frequency of the respective cavities. Additionally, it should be noted that the stepping motors are controlled by or responsive to a controller, such as a computer (i.e. CPU) and a network analyzer, which can determine the tuning conditions and stores such tuning conditions in various memory devices (e.g. EEPROM 19) for subsequent use (e.g. the stored information may be in the form preset tuning information, such as in a table or the stored information may be dynamically controlled via a input through a keyboard (17) as described in column 6, lines 14, 15). Additionally, note that optical sensors (e.g. IR sensors) can be used by

the CPU to digitally control the stepping motors to provide the desired degree of frequency tuning.

Accordingly, it would have been obvious in view of the references, taken as a whole, to have further modified the filter of the above obviousness combination to have included walls which partition the separate dielectric resonators into individual cavities and to have provided stepping motors for controlling the rotational and linear movement of the dielectric tuning rods (165) within the cutouts in the corresponding dielectric resonators, in view of the exemplary teaching thereof by Cavey. Such modifications would have been considered obvious since they would have imparted to the above obviousness combination the benefits of automatically control of tuning through the use of stepping motors, as well as providing a precise resonant frequency through the use of individual cavities, thereby suggesting the obviousness of such modifications.

Claims 21, 22, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al in view of Wenzel et al.

The filter of the above obviousness combination meets the claimed invention except for the filter cavities being arranged in a four square configuration and that the filter housing is formed by a sheet metal construction.

Wenzel et al (e.g. Fig. 1) exemplarily discloses a filter configuration having four cavities (e.g. 28) configured in a square shape configuration. Furthermore, Fig. 17 discloses a housing formed by a sheet metal construction, where the walls of the housing are assembled and secured to each other.

Accordingly, it would have been obvious in view of the references, taken as a whole, to have further modified the above obviousness combination to have configured the cavities in a

four cavity square configuration, such as taught by Wenzel et al. Such a modification would have been considered an obvious substitution of art recognized equivalent cavity filter configurations known to those of ordinary skill in the art and whose configuration is dependent on desired filtering characteristics, thereby suggesting the obviousness of such a modification. Moreover, the use of sheet metal to form a cavity filter housing would have been considered an obvious design consideration providing the benefit of light weight construction, as known to those of ordinary skill in the art, thereby suggesting the obviousness of such a modification.

Claims 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the above rejection as applied to claim 9 above, and further in view of Wenzel et al.

The filter of the above combination discloses the claimed invention except for the filter being formed by conductive plates being plugged into one another.

Accordingly, it would have been obvious in view of the references, taken as a whole, to have modified the filter of the above combination to have been formed by a sheet metal construction in which the filter housing is assembled by plugging together the conductive plates, such as exemplarily taught by Fig. 17 of Wenzel et al. Such a modification would have been considered obvious since it would have provided the benefit of constructing the housing in a simple manner (i.e. plugging plates into one another), thereby suggesting the obviousness of such a modification. Note that as an obvious consequence of forming the cavities using the sheet metal construction, such construction provides for opening between the cavities for coupling purposes, such as exemplarily taught by Fig. 17 of Wenzel et al, thereby suggesting the obviousness of such a modification.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Abe et al discloses a dielectric resonator structure having tuning holes disposed in the dielectric resonator which are "eccentrically" (i.e. offset from the center of the resonator) located.

Regarding the Information Disclosure Statement (IDS) filed 6 June 2005, the citations in the IDS have not been considered since copies of the cited documents have not been provided. Accordingly, the citations in the IDS have not been considered and thus have been lined through.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

/BENNY LEE/
PRIMARY EXAMINER
ART UNIT 2817

B. Lee